

The United States Miller



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THE COCKRELL DUST COLLECTOR.

The above named machine was brought to the general notice of the public last summer. Before being thus introduced, a long continued series of experiments with it was had until it was believed to be about perfect. It has been placed in a large number of mills, and has proved that the judgment of the manufacturers was correct.

The manufacturers in writing concerning this machine say: "The Cockrell Dust Collector," herewith illustrated, and which we offer to millers with our indorsement, is not simply an improvement upon some other dust collector, but it is entirely novel in construction and operation, and makes a new departure in that class of machines.

Briefly described, it consists of a stationary cylinder of suitable size, provided with a hopper and conveyor below for receiving the dust, and with large openings at the center of both ends for the free escape of the purified air. Inside this stationary cylinder is a revolving cylinder composed of narrow strips of peculiar shape attached to iron spiders, which are fastened to the shaft; one end of this shaft receives the driving pulley, as shown in the engraving, and from the other end the conveyor is driven by means of sprockets and chain. This revolving cylinder is quite light, runs very easily, and as it revolves in the direction of the incoming current of air, requires but a trifle of power.

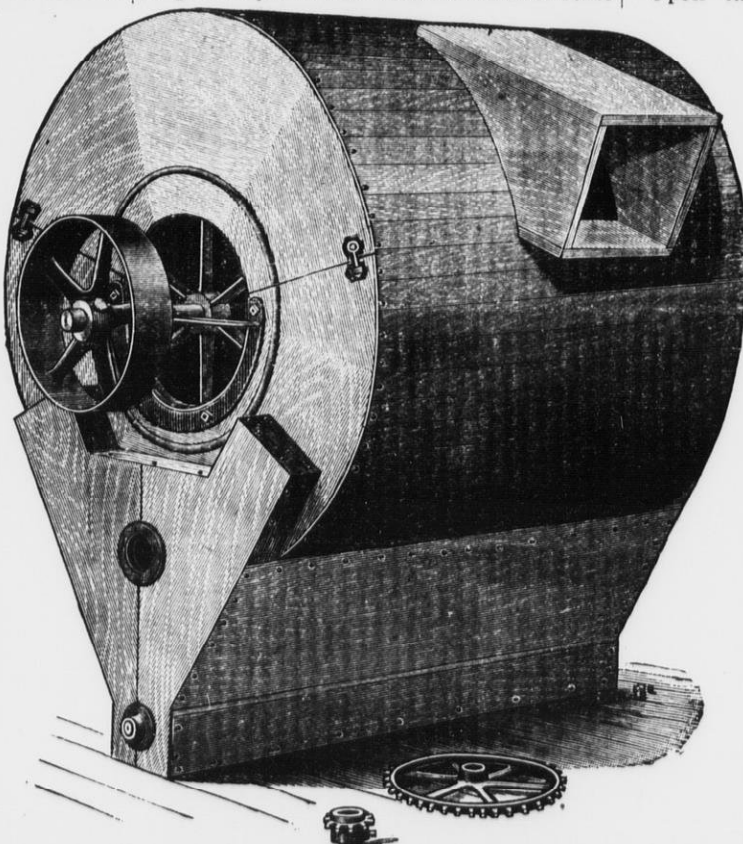
The dust-laden air from the purifier or grain cleaner is blown into the stationary cylinder, and the motion of the revolving cylinder accelerates the velocity of the incoming current of air, compresses it to some extent, and effects a complete separation of the dust and air, discharging the dust through suitable openings into the conveyor box below, and the air freed from dust escapes through the end openings out into the mill.

The machine has no cloth and cannot clog; produces no back pressure upon the purifier; is extremely simple in construction; noiseless in operation; requires but a trifle of power; can be placed on top of a middlings purifier or in any other convenient location; and bet-

ter than all, it does catch the dust. In support of this statement, we cannot do better than add the following letter from the Kratochwill Milling Co., of Dayton, O.:

Stillwell & Bierce Mfg. Co.

GENTS: The two Cockrell Dust Collectors which have been running in this mill the last three months have been severely tested on the most difficult kinds of stock with most satisfactory results. I find them to be most emphatically *Dust Collectors*. They are running side by side with dust collectors of other



manufacturers, and I say without hesitation that yours is decidedly the best dust collector in the mill. They give us no trouble, and without attention do their work uniformly at all times. They rather assist the fan, relieving it of back pressure. It is the only machine I ever used that catches *all the dust*.
(Signed), E. C. LEHMAN, Head Miller.
I cheerfully indorse the above.

(Signed), JAMES KRATOCHWILL, Manager.
In conclusion, the manufacturers, The Stillwell & Bierce Mfg. Co., of Dayton, O., say: "We have secured the exclusive right to manufacture and sell this dust collector, and we now offer it to the trade at reasonable prices, and with full confidence that it will fill the bill. Prices and further information will be furnished on application."

MERCHANT MILLERS' MEETING.

HELD IN MILWAUKEE, DEC. 17-18, 1888.

Pursuant to call representative merchant millers from several states and territories to the number of 165 met in the club rooms of the Plankinton House, at 2.30 p. m. Dec. 17.

The meeting was called to order by Mr. Greenleaf of Minneapolis, and upon his motion Mr. Edw. Sanderson of Milwaukee, was elected chairman. Mr. John W. Turner, of the *Northwestern Miller*, was elected secretary.

Upon taking the chair, Mr. Sanderson thanked the convention and made some general remarks upon the present condition of the flour trade, which were well received. Mr. A. A. Freeman, owner of a large mill in La Crosse and also a prominent flour and produce dealer in New York, was called out and requested to answer the query, "What are we here for?" Mr. Freeman proceeded to show that there was a glut of flour on the market now which must be sold at a loss to the millers unless a reduction of production was agreed upon and faithfully carried out. He believed that there was a sufficient supply in Eastern warehouses for four months, taking into consideration many things among which he mentioned the fact that many families, anticipating a rise, had laid in a year's supply, and that there was more economy displayed in the consumption of bread—that meat and potatoes were cheap and more of these commodities would be used than ever, etc., etc. At the conclusion of Mr. Freeman's address, a resolution was introduced restricting the output by closing all merchant

mills one-fourth of the time to April 1. This called out a great deal of discussion in which Smith and Fusz of St. Louis, Seybt of Highland, Ballard of Kentucky, Greenleaf and Martin of Minneapolis, Urban and James of Buffalo, Trow of Madison, Ind., and many others took part.

Mr. Freeman, of La Crosse, then moved a substitute motion to that pending, declaring it the sense of the meeting that the merchant mills of the country should shut down one-half the month of January and a week each in the two months following. This brought A. H. Smith, of St. Louis, to his feet. "The

resolution is entirely out of order," he said; "it is going in the wrong way. We want something permanent and to have a strong organization in the Northwest, Southeast and other sections, with a number of men chosen to limit prices and regulate the output. We can effect nothing without organization. At present our organizations bind no one further than the payment of dues. A member surrenders no rights, and is free to cut his neighbor's throat at will. Voluntary resolutions amount to nothing; they only have a moral effect. What we of the Southwest, with our 75,000 barrels capacity, want is something cast-iron."

Louis Fusz thought it was unwise to lessen the output by closing down by weeks. A consideration for the workingmen would suggest rather the decreasing of capacity, as mills so run held their tried crews and kept the good will of the men. There was a prospect of endless discussion and a motion prevailed to defer voting on the resolution until next morning.

Chairman Sanderson then suggested that the subject of the raising of railroad rates that affected flour men be discussed. Of course, he said, the oppression of railroad rate makers only added a little to the agony and if a man were dying the subject of how long he lingered was of little importance; but they had fought gamblers, thieves and thugs, and it might be well to send a committee to confer with the railways that wanted a piece of them. He thought where property was exported a reduction of the rate was but just.

A committee consisting of two members to a state was appointed to arrange a programme for the morrow's sessions. Before the committee was made up, a gentleman from Dakota raised a laugh by demanding that territories as well as states should be recognized on the committee. Someone said that Dakota should be twice represented, and the chair was led to remark:

"Guess that's right. They're going to have two states anyway!"

The committee was made up as follows: Missouri, Messrs. Fusz and Plant; Illinois, Messrs. Halliday and Seybt; Ohio, Messrs. Davis and Schumacher; New York, Messrs. James and Ogden; Dakota, Messrs. Stokes and Schraudenbach; Indiana, Messrs. Trow and Hawks; Minnesota, Messrs. Greenleaf and Pettit; Kentucky, Messrs. Ballard and Miles; Michigan, Messrs. Badger and Merrill; Wisconsin, Messrs. Freeman and Brazier; and Nebraska, Messrs. Crow and Harris.

The convention then adjourned to 10 a. m. Tuesday morning.

In the evening an elegant banquet was given to the visiting millers by Milwaukee millers, mill furnishers and transportation companies. The menu was excellent, the floral decorations beautiful, and the music by Bach's full band absolutely ravishing. About 200 persons were at table. Mr. Edw. Sanderson acted as toastmaster and many pleasant short speeches were made, although it was soon evident that oratorical display was not one of the things which afflict the big millers of this country.

TUESDAY, DEC. 18.

After the meeting had been called to order the report of the committee on organization was received through the chairman, A. H. Smith. The report consisted of four resolutions, as follows:

"Resolved, As the sense of this committee, that we recommend to all merchant mills of this country a curtailment of their output for January to one-half of their average capacity."

"Resolved, That a committee of three, consisting of A. A. Freeman, F. L. Greenleaf and A. H. Smith, be appointed; this committee to communicate with the millers attending this convention and with others interested in regulating the output of the mills of this country on or about the 20th day of each month, beginning with Jan. 20, concerning the wishes and views of the millers regarding the output of the coming month, and that this committee shall be empowered to order partial shut-downs in conformity with the wishes of three-fourths of their correspondents."

"Resolved, That the chair appoint a committee of five to ask the railroads to make the export rate 5 per cent. less than the internal rate."

"Resolved, That no mill shall consign any flour for three months after Jan. 1, 1889."

Ferdinand Schumacher moved that the first resolution be adopted by a rising vote.

George Urban, Jr., said that the Buffalo delegation could not bind anyone by its vote. The delegates from that city had come as individuals.

The chair said he understood that the resolution was not mandatory.

Mr. Loring, of Minneapolis, objected to shutting down on export flour in January. He desired to hold off long enough to get some money back.

Mr. Freeman believed the output could not be controlled by making conditions, and moved to put the resolution on its passage.

Mr. Seybt said he believed in a shut-down in all branches, and would give the committee appointed power to shut down or raise the gates whenever the conditions changed.

A. H. Smith, said: "There is hardly a doubt that the recommendation of this convention will be accepted by the millers all over the country. There is too much flour and too much wheat in the country. What we are here for is to reduce the supply of flour. What we want is cheaper wheat and dearer flour. We are not here to lower prices. If we can maintain the price of wheat and sell flour at a profit that is what we are here for. We aim to bring the supply and demand nearer together. If one month won't do it, let's take the dose for another month."

Mr. Urban said it had been stated that one-half the mills in the country could grind enough to supply the demand. He did not propose to be one of the millers to shut down all the time.

Mr. Seybt had added to the original resolution a sentence that the January shut-down was to take place as soon as the committee received reports from a majority of the millers of the country. With this addition the resolution was adopted unanimously.

The second resolution, appointing a regulating committee consisting of A. A. Freeman of La Crosse, F. L. Greenleaf of Minneapolis, and A. H. Smith of St. Louis, had an amendment first tacked on to the effect that the committee be empowered to terminate the shut-down whenever in its judgment the conditions of trade demanded.

Mr. Freeman modestly suggested this would be too much responsibility for the committee to shoulder. Mr. Seybt insisted, but brought in the amendment as a separate resolution.

At this point Minneapolis men began to show suspicions of getting the worst end of the bargain. Their fears were allayed when

it was pointed out that they had two members of the committee, Messrs. Greenleaf and Freeman. They were not entirely satisfied, and demanded that capacity count in decision for a shut-down. Mr. Freeman suggested that there was a public opinion among millers that would govern.

After more argument it was decided that capacity ought to count for numbers, and an amendment that three-fourths of the millers of the country, representing three-fourths of the capacity, must vote for a shut-down before the committee order it was passed. The resolution and that of Mr. Seybt were then unanimously adopted.

The transportation resolution went through without debate. The chair appointed as a committee on transportation, Messrs. D. B. Merrill, C. Espenchied, F. H. Foulds, C. H. Seybt, and Fahrner.

The only resolution that caused a division was that providing that no consignments should be made after Jan. 1, 1889, but this was finally passed.

After the usual passing of resolutions of thanks a roll-call of the milling capacity was made. The result showed the mills represented to have a daily capacity of 86,030 barrels the convention then adjourned.

Following the adjournment the spring and winter wheat millers held separate meetings. At the former an organization was effected with Edward Sanderson, Milwaukee, as president; F. L. Greenleaf, Minneapolis, secretary; and the following board of directors: A. R. James of Buffalo, C. A. Pillsbury and F. L. Greenleaf of Minneapolis, A. A. Freeman of La Crosse, W. H. Brazier of Milwaukee. Messrs. Manegold, Pettit, James, Harris, and Freeman were appointed as a committee to confer with the winter-wheat millers to arrange a satisfactory scale of prices in the higher grades of flour.

The winter-wheat millers met with L. C. Miles of Akron, O., in the chair. No organization was perfected. After the appointment of a committee consisting of Messrs. Plank, Griffith, Smith and Halliday, to confer with the spring-wheat men, the meeting adjourned to meet in Indianapolis the first Tuesday in February, when a general meeting of the millers of the winter-wheat States will be held.

CONVENTION NOTES.

The milling press was represented as follows:

UNITED STATES MILLER, E. H. Cawker;
Northwestern Miller, W. C. Edgar;
American Miller, H. B. Mitchell;
The Millstone, D. H. Ranck;
The Milling Engineer, Albert Hoppin;
The St. Louis Miller, C. Reifsnider.

The appointment of Mr. Turner of *The Northwestern Miller* as Secretary of the Millers' Convention occasioned some criticism. Mr. Turner however made a most excellent secretary. *The Northwestern Miller* certainly was entitled to the vote of thanks tendered them at the banquet, for we believe it was the only paper that had actually advocated the meeting in its columns. No doubt most of the other journals would have done so if their days of publication had been such that they could have published the notice given so hastily. We are informed that the publishers of several and know that the publishers of some journals personally labored to secure the attendance of millers. Mr. Ranck of *The Millstone*, aided materially in getting a good delegation from Indiana. The daily press of the West also rendered valuable service.

QUITE a number of faces familiar to millers' conventions were present, as will be seen by looking over the lists of attendants.

THE Milwaukee humorists, Geo. Peck and Horace Rublee got off a little harmless fun for the benefit of visiting millers at the banquet.

GEO. BAIN of St. Louis, was missed from the Convention.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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For estimates for advertising, address the UNITED STATES MILLER.

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MILWAUKEE, DECEMBER, 1888.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

THE millers at the recent Milwaukee Convention represented nearly 86,000 barrels daily capacity.

THE Winter wheat millers will meet in Indianapolis, Feb. 5, 1887, to take action for the benefit of the trade.

THE Illinois Millers' Association which met Dec. 5, elected E. C. Kreider of Jacksonville, president, and C. H. Seybt of Highland, Secretary, for the ensuing year.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

THE Martin Middlings Purifier Co., of Grand Rapids, Mich., will please accept our thanks for a beautiful, finely illustrated copy of a brochure entitled "GRAND RAPIDS, MICH., AS IT IS." That enterprising, manufacturing city, has indeed a brilliant future before it.

WE have had some correspondence with corn meal millers within the past two weeks, and they almost unanimously report trade to be unusually good. Johnny Cake, mush and milk, hog and hominy, and potatoes and meat, are being used to a greater extent than usual, while the consumption of flour is falling off. Verily, man does not live by bread alone.

Daily Business, (Chicago,) says:

"C. A. Pillsbury declares that he will continue to run his business in his own way, regardless of the action of the millers' convention at Milwaukee. He says the trouble with the millers is not so much a scarcity of orders for flour as it is a scarcity of wheat, and that they are naturally anxious for lower prices—that they may be able to buy wheat at cheaper prices. He has plenty of wheat for his own use and will keep right on grinding.

But then—Pillsbury is a bull, you know.

THERE are three commercial papers published in this country that every person or firm engaged in the milling or grain business should subscribe for and read. They are: *The N. Y. Daily Commercial Bulletin*, New

York, (subscription price \$12 per year); *The Cincinnati Price Current*, (weekly, subscription price \$5 per year), Cincinnati, O.; *Bradstreet's* (weekly, subscription price \$5 per year) New York, N. Y. These journals are truly valuable, and are worth the price asked for them. Try them for a year and you will continue them surely as long as you are in the business.

THERE were recently shipped from Glasgow, Scotland, two complete flour milling plants for Japan, one for Spain and a rice mill plant for Japan. Scarcely a week passes but we hear of European shipments of flour mill machinery to various Eastern countries and to South America. Would it not be well for some of our American mill furnishing houses to send out accomplished agents to these far countries and secure a portion of the trade. Advertising special machinery is all well enough, but it should be closely followed up by the commercial traveler. The advertisement always proves to be a good introduction for the agent.

IT appears from our foreign exchanges that an effort to organize a modified form of a trust among the millers in that portion of England lying "between the Humber and the Tweed" is being made. The success of the Cheshire Salt Syndicate which has raised the salt trade from a desperate condition (at the expense of the public, of course) to a highly prosperous industry has stimulated similar organizations in other lines of trade. It is referred to by the foreign press as an importation from the United States. It may be possible to establish a flour mill trust in England but we doubt it. Merchant millers in the United States have come to the conclusion that certain general rules for the disposal of their products may be established with benefit to all, public included. At the present writing something of that sort seems indispensable to the existence of a trade which ought to be at all times reasonably profitable.

WE make the following excerpt from the letter of a correspondent in Buenos Ayres, South America:

"All our sheep farmers have their eyes now fixed on Washington, and if the United States Government changes the Custom-house tariff and opens the door to Argentine wools, we may look forward to a new era in the sheep farming line. Furthermore, our relations with the States would become *ipso facto* most important and a current of reciprocal trade would be established and of such a magnitude as to astonish our North American cousins. There would then be no need of Government subventions to start steamship communication with New York, and the mere repeal of the wool tariff would do more than all the ministers, commissioners, treaties, and newspaper articles rolled together in opening up a brisk trade and giving American manufacturers a chance to compete with European rivals in this market to-day one of the most important in the world.

THE RIO DE JANEIRO FLOUR MILLS AND GRANARIES, LIMITED, RIO DE JANEIRO, SOUTH AMERICA.—*The Jornal do Commercio*, of Rio de Janeiro, of 28th October, says that a distinguished party, including many representatives of the press, was present at the

formal inauguration of the establishment of this company, on 27th October, under the guidance of Mr. Henry de Morgan Snell, the contractor.

The works consist of two large four story buildings, constructed almost entirely of iron and bricks, each 90 metres long, 15 metres wide, and 30 metres high, and which are connected by two iron bridges; on these buildings 400 men, including 160 carpenters, have been working continually for the last eight months. The motive power, which is supplied by two engines of 800-horse power, with four boilers of 1,500-horse power capacity, is communicated to the machinery through a fly-wheel of 32 tons weight. In the mill-building, which is ready, there is a complete plant of Simon's roller mill machinery, fitted with all the latest improvements, capable of grinding 240 tons of wheat per day. This is arranged for automatic working, so that one man only is required on each floor. The establishment is lighted with the electric light, for which two engines are provided, and the most approved fire-extinguishing appliances are being fitted to the mill, which is also provided with a special fire-engine, which on this occasion, with 60 lbs. pressure, threw a jet of water over the mill.

The granary, which is very nearly finished, has storage room for 25,000 barrels of flour and 5,000 tons of wheat. On the sea-side of the granary an excellent quay, with steel jetty, is being constructed, at which vessels of heavy tonnage can discharge their cargoes.

MILWAUKEE ITEMS.

SOME of the visiting millers left handsome orders with The Prinz & Rau Mfg. Co.

QUITE a delegation of millers attending the recent convention enjoyed a trip through Edw. P. Allis & Co.'s Reliance Works.

THE Chamber of Commerce is considering a change in its gratuity system. The number of deaths among members during the past year has been unusually large.

AMONG the recent contracts for complete milling plants, made by Edw. P. Allis & Co., are the following: Voges & Kreipke, Evansville, Ind., (200 bbls.); W. H. Ford, Lynchburg, Va., (75 bbls.); Geo. Schrimpton & Son, Salem, Neb. (50 lbs.); and several others.

MR. M. H. ESCOTT of this city, for several years actively connected with the Cockle Separator Manufacturing Co., has accepted a responsible position with the J. B. Alfree Mfg. Co., of Indianapolis, Ind., and has removed to that city. Mr. Escott has the kindest wishes for his welfare in his new home, of a host of Milwaukee friends.

MESSRS. EDW. P. ALLIS & Co. now have their 1889 Calendar ready for distribution, and millowners desiring a copy can secure one by writing to them, mentioning this notice. It is "a thing of beauty" and is highly creditable to Mr. Frank Barry, the general advertising agent of the firm.

THE MILWAUKEE BAG COMPANY has recently purchased a valuable piece of property in this city on East Water St. They found this movement necessary in order to secure room for their rapidly increasing business. Millers of the Northwest have found that they save time and money by patronizing the Milwaukee Bag Company.

[Written for the UNITED STATES MILLER.]
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POEWR TRANSMISSION MACHINERY.

A. J. SHAW.

V.

The original pulley was a round block of wood. To-day pulleys are in the market, of cast iron, wrought iron and steel, entirely or in part, wood and paper. Each material has advantages peculiar to itself, the relative importance of which in any particular case should determine what to use.

For most situations the standard cast iron pulley with straight arms, when symmetrical and well proportioned has not yet been improved upon, taking everything into consideration. The wrought iron, steel, wood and paper pulleys all have a decided advantage in point of weight, being much lighter and the adhesion of the belt to the surface of wood and paper pulleys is much greater than to metal. Steel and wrought iron pulleys are from 40 to 50 per cent. lighter than those of cast iron, and are considerably stronger, but, as far as the writer's observation has gone are very likely to be untrue. At least this has been the case with one make of wrought iron pulley on cast iron centers, although there is no reason why they should not be made to run almost absolutely "true." When well and accurately made, it is difficult to conceive of any thing neater, lighter, more symmetrical, or on the whole more satisfactory than wrought iron and steel pulleys. All-steel pulleys are usually made without arms, the rim being carried on a web of corrugated steel clamped between the halves of a cast iron hub. The rim of "mild steel" is united to this web by rivets. As the web presents a smooth surface, the air resistance of these pulleys, even at high speed, is very small, while accidents caused by objects getting caught between the arms are manifestly impossible.

Wood pulleys as now made have the advantage of lightness, and great holding power on the belt. A series of tests given in the *American Journal of Railway Appliances* would seem to indicate that with a given tension on the slack side, a belt on a wood pulley will transmit nearly or quite six times as much power at a given speed as the same belt on iron pulleys. A series of tests by Robert Grimshaw, a well known Philadelphia expert, gives the following results:

"The tests were made with 36-inch pulleys and in all cases the arc of contact was 180° or half the periphery of the pulley; six-inch double, oak-tanned leather belting.

Tension on slack side in pounds	POPULAR PULLEY.		IRON PULLEY.	
	Tension on taut side in pounds	Horse power at 1,000 feet per minute	Tension on taut side in pounds	Horse power at 1,000 feet per minute
100	520%	12.75	173%	2.22
150	833%	20.7	256%	3.23
200	1153%	28.8	346%	4.44

It is doubtful whether the high efficiency indicated by the above tests can be obtained in practice. The writer has seen no tests to determine this point, but it is significant that the makers of wood pulleys claim but 25 to 60 per cent. more than can be obtained with iron pulleys.

The best wood pulleys are of the "split" pattern, and clamp to the shaft instead of being dependent on set screws, hard-wood bushings being furnished with them to fit shafts of any size. This method of fastening

obviates the danger of springing the shaft which always exists when keys or set screws are used, and also ensures that the pulley if originally made "true" shall run "true. These pulleys have one disadvantage which to the writer seems to be a serious one: The thoroughly seasoned soft wood, in small sections, of which they are made furnishes the best of material with which to feed fires, and must aid very materially in spreading the flames, which, in a shop or mill of a not especially inflammable construction, might otherwise make slow headway. For "tight and loose pulleys" the common construction provides two pulleys exactly similar, except that the tight pulley is furnished with set screws. It is very much better construction to make the hub of the loose pulley of extra length, shortening the hub of the tight pulley on one side, to make room for it. There is usually no reason why the hub of a loose pulley of 3 inches face should not be at least 5 inches long, and every reason why it should. The importance of this point can hardly be overrated. Long bearings wear long. This is especially true of loose pulleys.

In bushing worn-out loose pulleys do not drive the bushing in the hole, but make it loose so that the pulley may run on the bushing or the bushing on the shaft. Loose pulleys which before bushing had always given trouble, have been made to run in a perfectly satisfactory manner by this simple means. In one instance, a pulley running very fast under a very tight belt, which had never run six months without renewal, has now been running under precisely the same external conditions, for over two years, with very little wear and without giving any trouble whatever.

The reason is not very hard to find. Being divided between two surfaces, the speed of sliding is very much reduced, and with it the liability to heating and cutting. If one of the surfaces runs dry and gets hot and sticks, the bearing is transferred to the other until the first cools off or receives a supply of oil. If there be but a single bearing, it must run right along, no matter what its condition, and a cut and ruined journal is the inevitable result.

Oil-grooves should be cut on both the outside and inside of the bushing, and oil-holes should be drilled through to connect them.

Loose pulleys have been made to take up the wear of the hole. The writer has known of but one, and from the way in which that one worked must agree with "Chordal" when he says: "There are a hundred geniuses in the country trying to invent a loose pulley adjustable for wear. When they succeed in doing so, loose pulleys with proper length of hub will wear out and not till then. [There is a difference between "cut" and "wear." Tightening a cut journal will ruin it.] A good example of a loose pulley with a long hub is the cone on an engine lathe. If it does not cut it will almost never wear out. No one ever saw one loose unless it had "cut" at some time.

Like all other bearings, loose pulleys are apt to run better when a little end-play is allowed, than when they are tight between the collars. The end-play has a tendency to prevent the formation of grooves around the shaft, and gives a much better distribution of the lubricant.

The proper place for oiling loose pulleys is from the center of the shaft. This is not

usually practicable for counter and other overhead shafts, but on machines should be done whenever possible.

It is not well to make loose pulley hubs longer on one side than on the other, as, if the difference be great, the hole is apt to wear conical when it will refuse to retain the oil and will give trouble.

Many devices have been tried to ensure the continuous oiling of loose pulleys. One of the most successful consists in making the hub hollow, and filling the cavity with Albany grease or some other semi-fluid lubricant. The grease is retained in the cavity as long as the pulley runs cool, but as soon as it warms up a trifle the grease softens, and flows to the shaft through holes provided for that purpose. When the temperature has become sufficiently reduced by a liberal supply, the flow stops. In practice the bearing warms up just sufficient to cause a continuous, very slow feed. The only objection that can be made to this arrangement is that there is a constant loss of the power required to maintain the temperature at which the feed will take place. This loss is not large, however, and for most situations is of little or no account when compared with the advantages of certainty of action and little attention required. In some cases these pulleys run continuously for ten hours a day, for nearly a year with one filling.

[FINIS.]

SARCASTIC ADVICE TO ADVERTISERS.

A Connecticut journal some time since tendered the following somewhat sarcastic advice to advertisers. It will prove profitable reading for many of those who are considering the question of where and how to advertise:

If you have goods to sell, advertise the fact. Hire a man with a lampblack kettle and brush to paint your name and number on all the railroad fences. The cars go whizzing by so fast that no one can read them, to be sure, but perhaps the conductor will be obliging enough to stop the train for inquisitive passengers. Remember the fences by the roadside as well. Nothing is so attractive to the passer-by as a well-painted sign: "Mullington's Medical Mixture for Mumps." Have your cards on the hotel register, by all means. Strangers stopping at the hotel for the night generally buy a cigar before leaving town, and they need some inspiring literary food besides. If an advertising agent wants to advertise your business in a fancy frame at the depot, pay him about two hundred per cent. more than it is worth, and let him put it there. When a man has three-quarters of a second in which to catch a train he invariably stops to read depot advertisements, and your card might take his eye. Of course the street thermometer dodge is excellent. When a man's fingers or ears are freezing, or he is puffing and "phewing" at the heat, is the time above all others when he reads a thermometer advertisement. Print, in the blackest ink, a great sprawling card on all your wrapping paper. Ladies returning from a shopping tour like to be walking bulletins, and if the ink rubs off and spoils some of their finery, no matter. Don't fail to advertise in every circus programme. It will help the circus to pay their bills, and visitors can relieve the tedium of the clown's jokes by looking over your interesting remarks about "ten per cent

ARKELL & SMITHS,

CANAJOHARIE, N. Y., U. S. A.

MANUFACTURERS OF

All Rope Manilla Paper Sacks

FOR

FLOUR AND CEMENT.

* ————— We Will Guarantee Our ————— *

DOUBLE EXTRA ALL ROPE PAPER SACKS



to carry the contents---either 75 pounds of Cement,
or 50 pounds of Flour---as far as can be trans-
ported in Cotton Sacks. : : : : : : : :



These sacks will stand abrasion, do not sift, are air-tight
and proof against insects.

below cost," etc. A boy with a big placard on a pole is an interesting object on the street, and lends a dignified air to your establishment. Hire a couple. Advertise on a calendar. People never look on a calendar to see what day of the month it is. They merely glance hurriedly at it so as to be sure that your name is spelled with or without a P, that's all.

When the breezes blow, wafted by a paper fan in the hands of a lovely woman, 'tis well to have the air redolent with the perfume of the carmine ink in which your business address is printed. This will make the market for decent fans brisk. Patronizing every agent that shows you an advertising tablet, card, directory, dictionary, or even an advertising Bible, if one is offered at a reasonable price, shows that you know where to invest your money.

But don't think of advertising in a well established, legitimate newspaper. Not for a moment. Your advertisement would be nicely printed, and would find its way into all the thrifty households of the region, where the farmer, the mechanic, the tradesman and others, live, and into the families of the wealthy and refined—all who have articles to buy and the money with which to buy them; and in the quiet of the evening, after the news of the day has been digested, it would be read and pondered, and the next day people would come down to your store and patronize you, and keep coming in in increasing numbers, and you might have to hire an extra clerk or two, move into a larger block and more favorable location, and do a bigger business; but, of course, it would be more expensive—and bring bigger profits.

THE RULE USED IN TESTING BOILERS—HYDROSTATIC AND STEAM PRESSURE.

A correspondent asks the *American Machinist* the following question:

"Please give me the rule used in testing steam boilers. Is the strain of a boiler the same when tested with hydrostatic pressure as when tested with steam pressure?"

The following is the reply: All new boilers, and all boilers that have been extensively repaired, must be subjected to a hydrostatic pressure in excess of highest working pressure, in order to test the tightness of the seam and rivets, the soundness of the plates and the structural strength of the boilers. Such tests must be repeated periodically during the lifetime of the boiler. A test pressure equal to three times the working pressure was formerly held necessary by many authorities, but nowadays it is not considered prudent to subject marine boilers of the ordinary form to a severe test. An excessive pressure may produce injuries which do not become apparent during the short test, but which continues to increase under the ordinary working pressure when the boiler is put into regular use. The test pressure must in no case strain any part of the boiler beyond the limit of elasticity of the metal. Section 4,418, of the "Revised Statutes of the United States" provides that all boilers used on steam vessels, and constructed of iron and steel plates, inspected under the provisions of section 4,439, shall be subjected to a hydrostatic test in the ratio of 150 pounds to the square inch to 100 pounds to the square inch of the working steam pressure allowed. United States naval boilers, when new or

extensively repaired, are also subjected to a test pressure equal to one and a half times the highest working pressure above the atmospheric pressure. French laws require that tubular boilers of merchant vessels are to be tested to double the working pressure above the atmosphere at least once a year, and whenever repairs or alterations have been made on them. The boilers of French naval vessels are subjected, when new, to a test pressure equal to twice the working pressure, and annually thereafter to a test of one and a half times the actual working pressure above the atmosphere; but this pressure is to be kept on the boiler not longer than five minutes. The "Steam Manual," issued by the English Admiralty (1879), contains the following instructions regarding periodical testing by water pressure of the boilers of Her Majesty's ships and vessels in commission. In case of ships having new boilers, or boilers repaired for a commission of four years, the boilers are to be tested by water pressure at the end of two years' service, and subsequently at half yearly intervals during the remainder of the commission. During the application of water pressure the boilers are to be carefully examined, and proper gauges are to be used to detect any change in the form of the furnaces, combustion chambers, etc. The water pressure is to be double the working pressure, provided that during the application no indications of weakness are observed. Should, however, any indications of probable permanent deformation be observed, the test is to cease, and the working pressure is then to be limited to one-third that of the test pressure arrived at before such indications were seen. The Board of Trade (English) provides as follows: "All new boilers, and boilers that have been taken out of ships for thorough repair, must be tested by hydrostatic pressure up to at least double the working pressure that will be allowed, previous to the boilers being replaced in position, to test the workmanship, etc.; but the working pressure is to be determined by the stay-power, thickness of plates, and strength of riveting, etc." The usual method of testing boilers is to fill them with water and pressure within them by means of a hand force pump. All the openings of the boiler are securely closed. The safety valve, which is loaded to the required test pressure, is kept raised till the boiler is completely filled with water. Then, after closing the safety valve, the pump is worked till the steam gauge indicates the test pressure. The pump should deliver only a small quantity of water at each stroke, and must be worked carefully, as the pressure rises, in order to avoid jarring the strained boiler and producing a sudden rising of pressure beyond the limit of test pressure. Some engineers close the safety valve before the boiler is quite full of water, and so retain a quantity of air as a cushion when the pressure is applied by the pump: but when this enclosed air escapes through leaky seams and rivets, no marks indicating such leaks are indicated on the plates. The foregoing has been taken from the treatise on steam boilers by W. H. Shook. Locomotive boilers are often by means of an injector made for the purpose. When boilers are tested by hydrostatic pressure, the water should always be hot. There is no difference in pressure between hydrostatic and steam tests.

NO SUCH THING AS PERFECTION.

The mechanic who thinks he has arrived at perfection may be written down as an ass. There is no such thing as "perfection" in the mechanical arts, and the man who claims to be a complete and finished mechanic knows in his heart he claims that which does not belong to him, and he will soon discover his vanity, for his fraudulent pretenses do not deceive the employer to any great extent. Blow and bluster will not make good work or pass for efficiency, and the man who uses that sort of weapons seldom deceives an employer. "I never employ a man who knows it all," said a large contractor to us the other day. "Give me a modest, neat looking man," he continued, "and I'll hold you a dollar he is a good workman and one that may be relied upon; though of course, that sort of man seldom comes in search of employment. Bragging fellows, who state they can do anything from dressing a board to designing a cathedral, are quite numerous, and may be had at any moment." Doubtless this is true, but it does not argue that there are not many of the modest workmen. There are plenty of them, good, reliable fellows, fellows that seldom or never have need to seek employment. They are always engaged. Most of them own their own homes, are intelligent chaps, models in their own neighborhood, best citizens, have neat, thrifty wives, and healthy, happy children, and their country is proud of them, for it understands that they are towers of strength and bulwarks of true freedom. It is not from this class that anarchists or noisy damogues are drawn; they do nothing until they have first considered the results, and all their actions are tempered with wisdom, hence their ability to become good mechanics.—*The Timber Worker*.

BUCKWHEAT CAKES.

This toothsome diet, eaten with maple syrup or honey or the finest quality of golden syrup, or in the absence of these, with white sugar melted, is one easy to make and easy to mar. A piping dish of these, brown from the griddle, will cause your husband, young housekeeper, to leave you with a warm recollection of home, when an enthusiastic kiss is the supplement. We offer a good recipe:

For a generous supply of these cakes for six persons take one quart of buckwheat, half a pint of white cornmeal, one tablespoonful of salt, one quart and a gill of warm water, two tablespoonfuls of molasses, a heaping teaspoonful of soda, and one cupful of yeast, or one cake of compressed yeast.

Put the buckwheat, meal and salt in a deep pail, and add to the mixture the water, yeast and molasses. Beat vigorously for twenty minutes. Cover the pail and set in a warm place until morning. In the morning rub the soda through a fine sieve, letting it fall on the batter. Beat well. Fry on a griddle, serving as soon as cooked. Reserve one pint of the batter for raising the next batch of cakes. It should be kept in the refrigerator or the cellar.

Remember that success in making buckwheat cakes depends largely upon a thorough beating and careful raising.

READERS should examine carefully our premium offer on another page of "Fifty Novels."

A NIGHT IN CHICAGO —AND A— NIGHT TRAIN —TO— INDIANAPOLIS. —THE—

MONON ROUTE

LOUISVILLE, NEW ALBANY & CHICAGO RY.
HAS A TRAIN

Leaving Chicago
AT 11:40 P. M.

EVERY NIGHT (Sundays included), with THROUGH COACHES and PULLMAN SLEEPERS, ARRIVING INDIANAPOLIS at 7:30 A. M.

ADDITIONAL TRAINS leave Chicago for Indianapolis at 8:15 A. M. and 8:20 P. M. Ask your home Agent to make your tickets read via the MONON ROUTE, so your comfort may be assured. For further information, Sleeping Car Berths, etc., call at

CITY TICKET OFFICE, No. 73 CLARK ST.

—OR AT THE—

DEARBORN STATION, CHICAGO.

E. O. McCORMICK, Gen'l Pass. Agent, CHICAGO.

NOTES

from the diary of tourists, commercial travelers, business men and others has revealed:

That the Wisconsin Central has the unqualified endorsement of all:

That the Wisconsin Central has to-day the most popular line between Chicago and Milwaukee, and St. Paul Minneapolis and the Northwest;

That the Wisconsin Central is daily adding to its admirers as the recognized Pullman line between Chicago and Milwaukee and Ashland, Duluth and Lake Superior;

That the Wisconsin Central touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the Northwest;

That the Wisconsin Central has made an enviable reputation with its peerless Dining Car Service;

That the Wisconsin Central runs fast trains on which all classes of passengers are carried with commodious and distinct accommodation for all;

That the Wisconsin Central has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

WM. S. Mellen, General Manager.
JAMES BARKER, Gen'l. Passr. & Tkt. Agt.
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MILWAUKEE, WIS.



Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

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Gen'l Pass. and Tkt. Agt.

For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGAN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND NORTH- WESTERN RAILWAY.

Illustrates the Centres of Population in

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WISCONSIN,
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NEBRASKA AND WYOMING.

Its TRAIN SERVICE is carefully arranged to meet requirements of local travel, as well as to furnish the most attractive routes for through travel between important

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Its EQUIPMENT of Day and Parlor Cars, Dining and Palace Sleeping Cars is without rival.

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The North-Western is the favorite route for the Commercial Traveler, the Tourist and the Seekers after New Homes in the Golden Northwest.

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SHEBOYGAN, MANITOWOC, APPLETON
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TO ALL THE IMPORTANT TOWNS IN THE
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Milwaukee & Northern R. R. SHORT LINE —TO—

Marquette, Negaunee, Ishpeming,
Hancock, Houghton, Champion,
Republic, Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah,
Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*1:35 A. M.	*3:20 A. M.
Iron Mountain, Menominee,	*1:35 A. M.	*3:20 A. M.
Marinette, Green Bay,	3:10 P. M.	3:55 P. M.
Depere,	*7:35 A. M.	
Green Bay, Depere, Appleton, Menasha, Neenah,	7:55 A. M.	3:55 P. M.
	3:10 P. M.	10:20 A. M.

*Daily. †Daily, except Monday. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON,
General Manager.

W. B. SHEARDOWN,
General Ticket Agent.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.

We shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

NEWS ITEMS OF ALL SORTS.

A communication from Sioux Falls, Ia., dated Dec. 11, says: Fidel Schlasinger of Minneapolis is here making a thorough examination of the Queen Bee flouring mill. It is said he represents the Pillsbury's of Minneapolis, and that upon a favorable report from him regarding the conditions of the property those flour kings will purchase the mill and start it going by the middle of February. In addition to the admirable water power they will add a monster Corliss engine to prevent idleness owing to low water.—A flour dust explosion destroyed David Oliver's oat meal mill in Chicago, Dec. 11. Two lives were lost.—**BURNED OUT:** Annesser Bros. & Co., millers at Santa Anna, Texas. Loss, \$8,000. Insured.—Messrs. Alcorn & Johnson, succeed M. Cockerline & Son in the mill at Aumsville, Ore.—**BURNED OUT:** G. H. Stewart's mill near Myersville, Pa. Loss, \$5,000.—**BURNED OUT:** Kent's saw and feed mill at Rome, Wis. Loss, \$2,000. Uninsured.—**BURNED OUT:** Nov. 10, Ott & Hickens mill at Sidney, Ia. Loss, \$2,000.—**DIED:** John Roseberry, miller of Harmony, Pa., of heart disease.—A man has been arrested in Elizabeth, N. J., for setting fire to Harris' mill. The fire was extinguished with small loss.—The Denton Mill & Elevator Co. at Denton, Texas, is building a corn meal mill.—The Liberty Roller Mill Co. at Liberty, Tenn., has a neat, new 50 bbl. roller mill.—A millstone burst in the mill owned by Galloway Cunningham, at Galloway's Station, Tenn., killing one man and badly injuring one of the owners.—The J. B. Allfree Co., of Indianapolis, have secured the contract for a 125 bbl. roller mill to be built at Union City, Tenn., for Wilder, Moore & Co. Two mills have already been built for the head of this firm, Mr. Wilder, under the Allfree system.—The 75 bbl. roller mill built by the J. B. Allfree Co., of Indianapolis, for Henry Schulenberg & Co., at Covington, Ind., was completed and started Nov. 16, and accepted and settled for on the 20th Nov.—The Kimberly-Clark Company have purchased the water power at Cedars, near Little Chute, Wis., from the Green Bay & Mississippi Canal Company and Henry Hewitt, paying therefor \$40 per horse power for the property. They will erect a large paper mill there in the spring.—The millers of Dakota held a meeting at Aberdeen, Nov. 21, which was largely attended. The meeting was held with closed doors, but it is presumed an organization was effected to control the production of flour.—Hon. W. D. Washburn of Minneapolis, appears to be probably a successful candidate for U. S. senator from Minnesota.—A mill is to be built at once at Louisville, Ky., for J. S. Minor.—J. H. Jones succeeds Jones & Holbrook, millers, at Menasha, Wis.—Wisconsin sends Van Schaick and Tennessee, Evans to congress. Both are prominently interested in flour milling.—Burned, Nov. 8, A. Roessers flour mill at Sister Bay, Wis. Loss, about \$25,000. Insured.—A New Orleans paper notes the re-shipment of three cargoes of wheat from that city to St. Louis, on account of change of prices, it being found more profitable to ship back to St. Louis, than to forward to Europe.—Burned, Nov. 13, Watson's stores, leased by the Milton Milling Co. Loss, \$500,000 on grain, machinery and building. Fairly insured. Cause of fire not positively known.—The users of the elevator buckets made by the W. G. Avery Mfg. Co., of Cleveland, O., will be interested to learn that a new patent (No. 392,532, dated Nov. 6, 1888) has been granted to W. G. Avery of the company, on an elevator bucket.—Allen & Moore, Craig Landing, Miss., have started up their new corn mill.—W. H. Ford is building flour and corn mill at Lynchburg, Va.—Ward & Stapp are building a merchant mill at Sheffield, Ala. Capacity 200 barrels.—The J. G. Chick Milling Co., Rockford, Ill., has been incorporated with a capital of \$100,000.—The J. B. Allfree Company, Indianapolis, Ind., are doing a large business in mill building and furnishing which we have no doubt will rapidly increase.—The Capitol flouring mills at Lansing, Mich., were destroyed by fire. Loss, \$50,000; partially insured.—Burned, Dec. 18 The Fountain City Mill Co.'s mill at Fountain City, Wis.—At Saginaw City, Mich., Nov. 29, a terrific explosion at a quarter to 1 p. m. shook the city, and was closely followed by an alarm of fire from the direction of the Steglein furniture factory, standing nearly in the center of the city. When the firemen reached the scene the factory was demolished and enveloped in flames—the wreck was complete. The cause of the explosion was an accumulation of dust. The men had just left for dinner, or the loss of life would have been frightful.—At Bourneville, O., Dec. 18, a

fire was discovered in the engine-room of the flour mill of Jones & Corcoran. The village has no protection against fire, and the large four-story mill was burned to the ground, together with all its contents—3,000 bushels of wheat, 1,000 bushels of corn and 200 barrels of flour. The loss is about \$20,000 and the insurance \$4,500.—At Lancaster, Kas., Dec. 15, J. C. Van Horn's elevator was totally destroyed by fire. It was stored with grain, and on the side track stood a number of loaded cars, and the entire property was lost. The loss is \$3,700; insured for \$1,700.

TRADE NOTES.

THE YORK FOUNDRY & MACHINE CO., (John C. Kilner, Manager) of York, Neb., report a very prosperous season's business. Over thirty complete elevator outfits have been furnished.

THE NEW ERA SCALPER manufactured by the Superlative Purifier Mfg Co., of Milwaukee is growing in favor every day. It has been introduced into many of the best mills and is always well spoken of.

We saw a letter from the expert miller and millowner Mr. Homer Baldwin of Youngstown, O., which spoke in the most complimentary terms of **THE NEW ERA SCALPER** manufactured by the Superlative Purifier Mfg. Co., of Milwaukee.

THE J. B. ALLFREE & Co. of Indianapolis, Ind., has been organized with a capital of \$50,000. The officers are Robert Shreve of Cumberland, Md. Jas. B. Allfree, Vice President and Gen'l Manager and M. H. Escott, Sec'y and Treas'r. They are now in the field for everything in the line of Mill Building and Mill Furnishing.

THE Jefferson Mfg. Co. of Columbus, Ohio, have had a very prosperous year. Their sales of elevating and conveying machinery has largely increased and the present outlook is very encouraging. This company also enjoys a large business in the manufacture of their Coal Mining machines, and Drills for which they now have orders sufficient to keep them busy through the winter.

A NEW USE FOR GRAPHITE.—From time immemorial steam and gas fitters have used red lead in making joints and connections. It has been a matter of tradition with them that nothing else could possibly answer as well. However, after a few months have passed it is found that the red lead has "set" and it is next to impossible to open a joint. The fitter applies his tongs with all his strength, and in a large percentage of cases the joint is finally broken and the tongs sprung, sometimes beyond repair. **DIXON'S GRAPHITE PIPE JOINT GREASE** makes an infinitely better joint. It is made of properly pulverized and perfectly pure graphite, mixed with best boiled oil. The graphite being a natural lubricant, it enables the fitter to make a much tighter and, consequently, a much more perfect joint. Being several times greater in bulk than an equal weight of red lead, it is far more economical. Further, a joint so made can remain three months, three years or thirty years, and will then yield to the ordinary pressure of the tongs. It will make a better joint with less leakage, and render absolutely unnecessary the breaking of joints and couplings, and the straining of the tongs. It is equally useful for bolts, screws, etc. Bolts smeared with this mixture have been easily unscrewed after having remained in the dampest places over two years.

ST. MARY'S FALLS CANAL BUSINESS

The season's comparative statement of commerce through St. Mary's Falls ship canal for 1887 and 1888 was completed Dec. 7. It shows in the value of the tonnage an increase of over \$3,000,000 over last season. Wheat shows a decrease of nearly 5,000,000 bushels, caused by the short crop in the Northwest and the unusual holdings for the Minneapolis mills. Iron ore shows an increase of 3 per cent over last year. The total value of freight tonnage that passed the canal this year was over \$82,000,000. The season was one of 212 days, during which time 7,803 passages were made. The report of 1888 shows a decrease of 17 per cent in the number of vessels, and an increase of 17 per cent in the freight tonnage that passed through, clearly indicating the retirement of small craft from Lake Superior. Coal, lumber, salt, building stone, silver ore, corn and flour all show marked increases. The commerce of 1888 through the canal does not show as large a percentage as in former years, owing to the great falling off in wheat shipments. In 1887 over 23,000,000 bushels of wheat passed through, while this year the figures are a little over 18,000,000 bushels.

THE DRIVING POWER BELTS.

Driving power of oak tanned leather belts:

Width of belts traveling 750 feet per minute.	Horse power.
1 inch.....	1.
2 ".....	2.142
3 ".....	3.480
4 ".....	5.028
5 ".....	6.788
6 ".....	8.726
7 ".....	10.953
8 ".....	13.360
9 ".....	15.982
10 ".....	18.825
11 ".....	21.882
12 ".....	25.638

Example: How many horse power will a 3-inch belt furnish, traveling over a 12-inch pulley, the shaft making 150 revolutions per minute? The circumference in feet of a 12-inch pulley is equal to 3.2416 feet. Hence the speed of belt is equal to $3.2416 \times 150 = 471.24$ feet per minute. According to the table a 3 inch belt running at 750 feet per minute gives us 3.480 horse power, therefore at 471.24 feet per minute we have

$$\frac{471.24}{750} \times 3.480 = 2.18+$$

horse-power, which the belt at the given speed will furnish.—*American Machinist.*

MILLS AND BAKERIES COMBINE.

The time is not very far ahead when the system of mills and bakeries combined, which is prevalent in many parts of Europe, will become a common thing in this country. There are many reasons why it is both practicable and economical. As a baker, the miller knows just the grade of flour he desires to make and knows just what it costs him. The same motive power needed to drive the mill will drive baking machinery, and where steam is used the necessary heat wanted can be furnished with little or no additional expense. There is no doubt but the miller-baker could furnish as good and often better bread for less money than the baker. Such combinations of business would necessarily be appropriate only in cities and large villages, and in such locations, if properly managed they will, we think, be profitable to the projector as well as beneficial to the public.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS,
MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN
MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, \$1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr. 89.]

Garden City Mill Furnishing Co., Chicago, Ills., Mill Builders, manufacturers full line of Flour Mill Machinery, dealers in Mill Supplies, Bolting Cloth etc., etc. [Mr. 89.]

Borden, Selleck & Co., 48 & 50 Lake st., Chicago, Ills., manufacturers of "HARRISON CONVEYOR" for Grain, Malt, etc., etc. [Mr. 89.]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr. 89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Poole & Hunt, Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

Thornburgh & Glessner, 18-22 N. Clinton St., Chicago, Ills., manufacturers of Mill and Elevator Supplies.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr. 89.]

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr. 89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr. 89.]

The Gupta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago, Ill., Belting and Rubber Goods. [Mr. 89.]

The Avery Elevator Bucket Co., sole owners and manufacturers of Seamless Steel Elevator Buckets, Wason, Lake and Dart sts., Cleveland, O. [Mr. 89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters, etc. [89. Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., Goulds & Austin, Agents, 167 and 169 Lake Street, Chicago. [Apr. 89.]

Weller Bros., 94 Wendell st., Chicago. Mfrs Mill and Elevator specialties, Cups, Boots, Spouts, Steel Conveyors, Power Grain Shovels; dealers in Cotton and Rubber Belting, etc. [Apr. 89.]

The Nordyke & Marmon Co., Indianapolis, Ind., Flour Mill and Mill Machinery builders, and dealers in Mill Supplies of all kinds. [May 89.]

The Shields & Brown Co., 240 and 242 Randolph st., Chicago, and 143 Worth st., New York. Mfrs. of Sectional Insulated Air Coverings for steam, gas, and water pipe, etc. [May 89.]

W. G. Avery Mfg Co., 10 Vincent st., Cleveland, O. Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May 89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades.

Situation Wanted.

A practical Stone Miller of thirty years experience, with good business qualifications and industrious habits, wants charge of a good Stone Mill by the month, or will run a mill on shares. Address, H. R. GARLICK, Menomonie, Wis.

"TRIUMPH" CORN SHELLER
CAPACITY

2000 BUSHELS PER DAY.

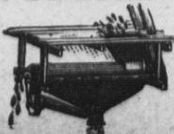
Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MANUF'G CO.,

No. 12 Fourth St., Painesville, O.

[Please mention this paper when you write to us.]

EXPORT AND MERCHANT MILLERS
AND MANUFACTURERS OF
WHEAT, RYE AND BUCKWHEAT
FLOURS, AND CORN MEAL AND
CORN PRODUCTS, (WITH NAMES
OF SPECIAL "BRANDS" MADE) DE-
SIRING CORRESPONDENCE WITH
SOLID HOUSES WITH A VIEW TO
TRADE.

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FOREIGN ITEMS.

BURNED, Martin's mill at Ottawa, Ont. Loss \$14,500. Insurance \$6,000.

BRAZIL is beginning to conserve its native industrial labor. A movement has recently been noted in connection with the milling trade, and now it is stated that a company has been formed in the province of Alagoas, in Brazil, for spinning and weaving the cotton produced in that country. Its capital is £30,000 divided into 15,000 shares at £20 each, but only 10 per cent. of this is to be called up at present. Two-thirds of the total capital is already subscribed. The headquarters of the company is at Maceio, and the factory is to be established at Cachoeira, near a railway, and in the midst of a cotton-producing district.

ITALY has found out a novel source of revenue from Customs duties. It is stated by the *British Medical Journal* that in as much as cremation is illegal in France, bodies which it is desired to cremate have to be taken to Italy for the purpose, and accordingly a gentleman who died recently at Paris left instructions in his will that his body should be conveyed to Milan, where it was to be cremated. This was done on July 18; the Italian Custom House, however, levied \$70.00 import duty on the body when it entered the country, and the same amount as export duty on the ashes as they were carried back to France. What would Cobden have said if he could have foreseen such a rabid Protectionist policy as this, at this date, in Europe!

THE *Mark Lane Express*, (London) says: They say that Uncle Sam wants a "national flower" to wear as a buttonhole decoration, and to use as an "emblem" of the great country of his birth, and to "size up" alongside of the English rose, the French lily, the Irish shamrock, and the Scotch thistle. The American Society of Florists are supposed to be on the look-out for such an emblem, and to be in favor of the sunflower, because it is "big, hardy, reminds one of gold, and thrives on any soil." A better could not be found. It must be neat, as it is all of one color, yet its brightness makes it gaudy enough to satisfy the tastes of those who live in the "hub of the universe;" further its flowers increase in size on the scale that would enable it to fit out an entire family from one plant—from the youngest girl up to the old man. And then, last but not least, its seeds are "mighty good victuals for hens."

THE MAIZE "RING" IN VIENNA.—The Vienna maize "ring" has now been in existence about a year. The speculation was based on the deficient yield of 1887 crops, and it was proposed to "corner" the Austro-Hungarian market with a view to dictating prices to consumers. According to Vienna letters the scheme has only succeeded so far as the buying up old supplies in concerned. Only occasionally has the syndicate been able to control prices against the opposing "bear" speculators, consumers having meanwhile successfully resisted the "bull" movement so far as their own actual requirements have been concerned. They have always been able to buy for delivery at lower prices than the published syndicate rates. The total quantity originally bought by the syndicate is put down at 1,500,000 cwt., of which 457,000 cwt., were delivered to their account in

Vienna alone. The syndicate have still to continue buying large quantities in order to prevent a heavy fall of prices. For the July-August settlement the prices rose momentarily by 8 fl., but it has since continually receded to 6 fl. 5 kr., and new crop maize can be obtained at even as low a rate as 6 fl. The syndicate have made great efforts to induce consumers to reduce the large stock now held, estimated at 700,000 cwt., but without much success, as contracts for delivery of new maize can be made on more favorable terms than the syndicate appear willing to accept. It is said to be now beyond doubt that the "corner" must end in a great deficit for the speculators. An immediate dissolution of the syndicate is not expected, as the bulk of the stocks will be held against the May-June settlement in order to defeat the "bears;" but in commercial circles it is argued that if the interests on the capital invested, the warehouse rent, the carrying over, and other charges are added together, the total will be equivalent to as much again as the cost of the grain to the syndicate, and therefore that the losses of the syndicate must amount to much more than those of the speculative "bears," who, having made uncovered sales, have been obliged to buy at any price against the settlements.

THE STRENGTH OF WOOD IS GREATER THAN STEEL.

American Manufacturer: A statement recently appeared in this paper giving the results of a comparative test of hardwood and steel, and showing that the advantage of strength in proportion to weight was with the wood. This fact seems to have been unobserved until recently, and has occasioned much surprise to some of our readers, one of whom writes to us that the fact is "worth the price of the paper for one year" to him, but does not say to what use he puts it. But no matter it is still the fact that hardwood is stronger than steel in resistance to breaking weight. Some further advantages in favor of wood are thus stated by an exchange when an all steel machine is brought into sharp contact with some unyielding obstacle, its frame is liable to spring, and when once sprung its usefulness is at an end. It cannot be straightened without resort to the shop for repairs. If a wood frame, it is not thus affected. If bent under a violent strain, it at once springs back to its original shape. A piece of steel one foot long and a half inch square weighs double as much as a piece of seasoned ash one foot long 1½ inch square. In other words, the steel in proportion to bulk is 15½ times as heavy as wood. A steel frame of a machine which is one-fifteenth as large as a wood frame, weighs exactly the same as the wood, but even with this difference in size, the wood has four times the strength. These are simple problems which every one can solve for himself.

On the other hand, evidence as to the use of steel in place of wood for railway ties, which have been very reluctantly adopted, has proved that steel is the most economical. In Burmah, as we learn from Indian Engineers, steel ties, after having undergone a careful test for the past four years, on different parts of the line, are now displacing the teak railroad ties hitherto used on the open line of the State railway. Teak so far has been found the best timber yet used for this

purpose, and has been found to last as long as ten years; but the use of steel ties economizes the expense of spikes, and is reported to last from 40 to 50 years. The low price now ruling has been a great inducement not only of substituting steel ties, but also a large quantity of steel rails is now being used in this province. With the growth of this idea, which must result from the rapid depletion of our hardwood forests, no doubt a method of preserving metal ties from rust will still further lengthen the period in which it may be used and make it still cheaper as a permanent sleeper for railway tracks.

TRANSMISSION OF POWER BY CABLE.

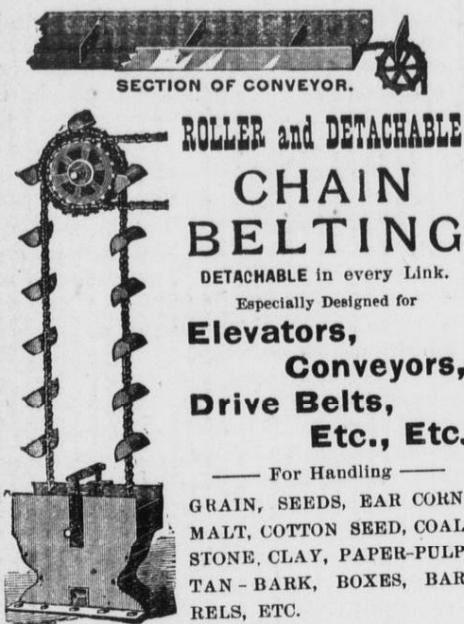
For the first time in America the principle of the cable as used in street railways, applied to the transmission of power to machinery in widely separated parts of a building, was tested recently at the Union Steamboat Company's warehouse on Market street, Chicago, with the most satisfactory results. The cable used was a manilla rope seven-eighths of an inch thick and 750 feet long. The rope went round the driving wheel and windingsheaves three times, and then was carried 150 feet north on twelve-inch pulleys of the same pattern as with the North Side street-car cable. There it furnished power to a moving incline, and then was carried 200 feet south and thence eastward seventy-five feet, where it drove a barrel-lift. Eighty feet northward it furnished power to another barrel-lift, and then returned to the driving wheel, where it moved a second incline. The slack in the rope was taken up by a sliding wheel on the same principle as in the street car cable. The driving wheels had V-shaped grooves in which the rope was pinched and prevented from slipping. The cable was tested running at the rate of 1,600 feet a minute. It was found that about five-horse power was taken up in driving the machinery when not loaded. The engine is forty-horse power, which gives ample power for the work. T. S. Miller, with The Link Belt Machinery Co., was the inventor of the plan.

THE FLOUR MARKET.

The N. Y. *Daily Commercial Bulletin* of Dec. 21, has the following:

The action of the conference of millers at Milwaukee yesterday in forming an organization for the purpose of curtailing the output of flour was the topic of conversation in flour circles on the Produce Exchange yesterday, and the subject of discrimination on through rates was again freely discussed. As a whole the local flour trade approved the resolution adopted by the Milwaukee conference in regard to curtailing the output for January to one-half the average capacity of the mills, and it also approved the resolution advocating the appointment of a committee to be empowered to order partial shut-downs by which to regulate the subsequent production.

The resolution providing for the appointment of a committee to ask the railroads to make the export trade 5 per cent. less than the internal rate received the severest criticism, however, and the Produce Exchange Committee that has the question of rate discrimination in charge was freely criticised for their inaction. A member of the Committee was seen on the subject stated that the whole matter had been placed before the



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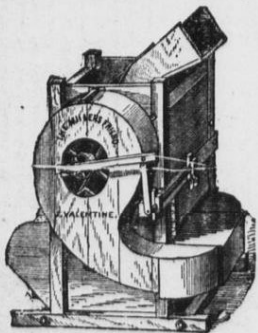
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[Jan. 89.]

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Budapest, Austria-Hungary.

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[Mention this paper when you write to us.]

IMPROVED CORN SHELLER,



IT IS THE
BEST CORN SHELLER
MADE FOR MILL USE.

IT IS
Simple in Construction
Almost Noiseless,
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Requires Little Power

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For descriptive circular, price list, etc., Address

JACOB VALENTINE,
Gorham, Ontario Co., N. Y.

Improved + Walsh + Double + Turbine



This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

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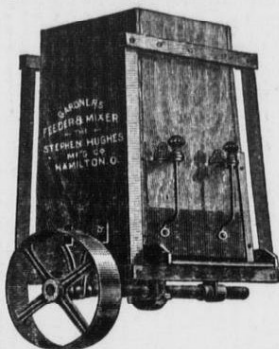
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Sheboygan Falls, Wis.

The Gardner Flour Feeder and Mixer.



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The STEPHEN HUGHES MFG. CO., Hamilton, O.

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OFFICE OF JAMES WILSON & Co., "ELY MILLS,"
ROCHESTER, N. Y., Nov. 3, 1888. }

Stilwell & Bierce Mfg. Co., Dayton, Ohio.

GENTS—The Cockrell Dust Collectors, five in number, on our wheat cleaning machinery in this mill *are doing great work*. I am willing to go on record as saying I have never seen anything to equal them, and in my best judgment they are catching 100% of the dust, and that is pretty near good enough. This may sound a little strong, but they are running every day, and can be seen by anybody at any time, and I assure you, gentlemen, they will talk louder and more convincingly than I can.

Yours truly,

[SIGNED]

GEORGE WILSON.

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ONE PAIR 4-FT. MILLSTONES; new.
SEVEN PAIR 4-FT. MILLSTONES;
used about three months.
ONE PAIR 9x18 CHILLED ROLLS;
smooth.
ONE NO. 1 THROOP SMUTTER AND
SCOURER.
ONE 24-INCH MIDDINGS MILL.
ONE 1000-LB. PALMER POWER
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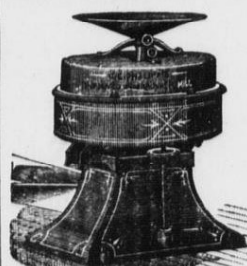
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CAWKER'S AMERICAN FLOUR MILL AND
ELEVATOR DIRECTORY FOR 1888, issued
March 3, is meeting with much praise from
all departments of the trade. While not
claimed by the publisher to be perfect, it
answers FULLY the requirements of the trade.
It is the only list published. The demand is
limited and the price (Ten Dollars per copy)
is cheap, considering the labor required in
compiling, printing and selling. It contains
lists of flour mill and grain elevator owners,
miscellaneous kinds of mills such as corn,
rye, oatmeal, rice and feed mills, millwrights,
flour brokers and dealers in various sections
of the United States and Canada, and a good
list of European flour and grain importers.
Kind of power used, rolls or stones, capacity
and millers supposed to be worth \$10,000 or
more are indicated in thousands of cases.



Inter-State Commissioners, but no reply had been received.

While the exports of flour thus far this year have not been up to last year's figures, they have, nevertheless, been quite liberal. For the week ending December 18, the output aggregated 87,236 barrels, making the total since January 1st, 4,395,581 barrels. During the same period last year the export account indicated 5,096,332 barrels. Notwithstanding this showing, the local flour trade state that New York has lost her foreign markets.

The situation was put in this light by a leading miller yesterday: "During the close of the summer and the early autumn trade the fact was freely advertised that the wheat crop was to be a very light one, and with the inducement of the cheap freight rates that then existed, contracts for forward delivery were freely made, many of them extending to the present month. It is the filling of these contracts and the shipments of consignments of flour where no orders could be obtained, in both cases very largely direct from the mills, that make the large export showing of the present. New York's part in this showing is very small indeed, for New York merchants now get very few orders except in a few hundred barrel lots where special brands are desired. It is of course a hard matter to prove that one man gets lower rates than another; but the fact that when, by the very closest figuring, you sell a lot of flour abroad your customer immediately informs you that he has a lot offered to him immediately afterward at a decided reduction under your price, it is evident that some advantage is derived from somewhere. By to-day's advice the New York market is from 15 to 35 cents per barrel above the English markets, and it has recently been 60c to 75c above them—possibly more. The Western mills make consignments abroad simply because they are choked up with flour, and they are forced to take the price ruling abroad. When the short wheat crop was so freely advertised, foreign wheat buyers went to India, to the Black Sea and elsewhere for their wheat, and drew a very large amount of ocean tonnage from Atlantic ports, which left rate-making for the ocean voyage entirely in the hands of the regular steamship companies, who took full advantage of their opportunity. I notice one resolution passed at Milwaukee yesterday that is a good one—that stating that no mill shall consign any flour for the first three months of next year. If that resolution is carried out the influence will be a strengthening one on the foreign markets, and it will very likely, I think.

A special from St. Louis to Henry Allen & Co. quotes a leading miller, who has just returned from Milwaukee, as saying: "The spring wheat had forgotten that there was such a thing as winter wheat; now they begin to realize it, as they are being supplanted by it. He says they are in a bad way, having thousands of barrels of flour on hand which they can only sell at a heavy loss, and are begging their neighbors to help them out. He thinks from what has been heard, that the misrepresentations made in the Northwest regarding wheat and flour supplies are simply monumental."

PHILADELPHIA DIMINISHING EXPORT TRADE.

The grain trade of Philadelphia is fast becoming a matter of past history. Statistics show that while our grain trade has fallen to a very low ebb, that of other seaboard ports, having facilities for shipping equal to or not so good as Philadelphia, has either increased or fallen in very much less proportion than that of this city. The query very pertinently arises as to why this state of things should exist. There is no reason why Philadelphia, with its harbor facilities, with its enterprising business men, and other great resources which go towards making an important commercial port, should be deprived of its share of the large grain trade of the country.

The following table presents, in the aggregate, the number of bushels of wheat and corn shipped from the four chief ports during the five years from 1883 to 1887, inclusive, together with the number during the present year up to Oct. 31:

Table showing aggregate exports of wheat and corn from principal ports from 1883 to 1888, inclusive.

Year.	Philadelphia.	New York.	Baltimore.	Boston.
1883.....	9,808,419	47,157,955	25,377,340	6,532,299
1884.....	7,447,021	30,663,994	21,505,099	5,236,674
1885.....	9,898,469	43,653,994	18,327,458	5,319,855
1886.....	8,157,239	53,679,735	24,651,669	5,838,061
1887.....	10,603,422	54,185,399	19,875,785	6,208,262
1888.....	1,700,419	23,174,513	7,281,977	3,665,662

It will be observed that while there is a noticeable falling off in the exports from all the ports this year as compared with last year, that of Philadelphia is by far the greatest. A better idea of the exact relation which Philadelphia bears towards its three rival ports both in receipts and exports of grain may be gained from the following tables, the first of which shows the proportionate receipts and exports of both wheat and corn of each of the ports during the five years from 1883 to 1887, inclusive, and the second table the same during 1888 up to Oct. 31:

Table showing proportionate receipts and exports at principal ports for period of 1883 to 1887, inclusive.

	Per cent.	Receipts.	Exports.
Philadelphia.....	.10	.11	.11
New York.....	.56	.55	.55
Baltimore.....	.22	.26	.26
Boston.....	.11	.07	.07

Table showing proportionate receipts and exports at principal ports from January to October, 1888, inclusive.

	Per cent.	Receipts.	Exports.
Philadelphia.....	.07	.04	.04
New York.....	.63	.64	.64
Baltimore.....	.17	.20	.20
Boston.....	.11	.10	.10

One of the results of decreased grain receipts has been the driving away of vessels from this port. The big grain elevators at Girard Point and at Richmond and elsewhere are put to but little use, while hundreds of vessels that might otherwise load with grain for foreign ports are forced to go away with empty holds or loaded with ballast to other Atlantic ports, which are thus building up their trade at Philadelphia's expense.—*Philadelphia Record*, Dec., 1888.

FLUSH TIMES ON THE RIVER PLATTE.

The packet leaves the Platte in the midst of a boom that finds no precedents in our annals. The country is going ahead like a fast express train, and such is the velocity of its course that the few who find breathing time to pause turn giddy at the sight of the great rush that is now an extraordinary feature in the march of nations. No other country on the face of the globe is advancing at the feverish pace of the Argentine Republic. Argentine progress is a solemn vindication of the Latin family, and proves to the world

that the descendants of Spaniards and Italians, under liberal democratic governments, can thrive and compare favorably even with the irrepressible vitality of the German or Saxon.

The busy season is dawning with exceptional prospects for sheep-farmers and wheat growers. The clip is expected to exceed last season's by at least 50,000 bales; the flocks are in splendid condition, the lambing has been very large and mortality has been nil, owing to the benign winter from which the country is emerging. For very many years sheep-farmers do not remember to have witnessed such a favorable winter. The cattle lords report an increase of forty to forty-five per cent. in their herds all over the country; they do not know what to do with their fat animals; the dead-lock in the cattle market threatens to become more pronounced after such a heavy increase in the province.

Wheat farmers, meantime, look forward to a gigantic crop, as double the area of ground has been cultivated and the plantations promise a rich yield. What with the expectations of an extraordinary clip and crop, and the great improvement in prices in the European consuming markets, it need not be wondered at if people in the Platte are preparing for a golden year in 1889; and, verily, everything promises such development at the present moment that we wonder what magical turn we shall see in River Platte affairs next year. We may witness exchange at 48½d and a steady flow of gold from Europe, and on its heels a steady appreciation of paper and gradual return to specie payments.

Whilst we mention the possibility of a return to specie payments on the strength of a good season and a rising exchange market, the great majority of financial authorities in this city are convinced that gold will go to 200 next year, in view of the sweeping avalanche of paper money that is expected in 1889. In this respect, we may add that sixty millions more paper money will be issued next year under the provisions of the free banking law of Dr. Pacheco. But in this country we are never quite sure whether we are on the roof or in the cellar; and just as all the wiseacres were wrong when they agreed that the Pacheco banking law would remain a dead letter, we may prepare for another paradox in the shape of a falling gold market in the midst of showers of paper money; at present we are witnessing a steady depreciation of paper in the midst of a gold blizzard from the Bank of England, Bank of France and Imperial German Bank.

WATER COURSES—DEFECTIVE SUPPLY FOR MILLS—REASONABLE USE.

H, in operating his mill, had a full supply of water from the stream it was on for nine months in the year, but for the remaining three months there was a great scarcity, and he had constructed a reservoir which could not be filled except by the flowing of the stream for three or four days. In the dry season H would use the water from this reservoir when it was full, and then resort to the steam power he had until the reservoir became again full. By taking this course H deprived the mill owners below him on the stream of the accustomed flow whenever he turned the water into the reservoir; and when he used

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 FOR 1889

The publishers of SCRIBNER'S MAGAZINE aim to make it the most popular and enterprising of periodicals, while at all times preserving its high literary character. 25,000 new readers have been drawn to it during the past six months by the increased excellence of its contents (notably the Railway articles), and it closes its second year with a new impetus and an assured success. The illustrations will show some new effects, and nothing to make SCRIBNER'S MAGAZINE attractive and interesting will be neglected.

The Railroad Articles will be continued by several very striking papers; one especially interesting by Ex-Postmaster-General Thomas I. James on "The Railway Postal Service."

ILLUSTRATED.

Mr. Robert Louis Stevenson's serial novel "The Master of Ballantrae," will run through the greater part of the year.

A Correspondence and collection of manuscript memoirs relating to J. F. Millet and a famous group of modern French Painters will furnish the substance of several articles.

ILLUSTRATED.

The brief end papers Written last year by Robert Louis Stevenson, will be replaced by equally interesting contributions by different famous authors. Mr. Thomas Bailey Aldrich will write the first of them for the January number.

Many valuable Literary Articles will appear on Walter Scott's Methods of Work, illustrated from original MSS., a second "Shelf of Old Books," by Mrs. James T. Fields, and many other articles equally noteworthy.

ILLUSTRATED.

Articles on Art Subjects will be a feature. Papers are arranged to appear by Clarence Cook, E. H. Blashfield, Austin Dobson, and many others.

ILLUSTRATED.

Fishing Articles describing sport in the best fishing ground will appear. Salmon, Wininich, Bass and Tarpon are the subjects now arranged. The authors are well-known sportsmen.

ILLUSTRATED.

Illustrated Articles of great variety, touching upon all manner of subjects, travel, biography, description, etc., will appear, but not of the conventional commonplace sort.

ILLUSTRATED.

Among the most interesting in the list of scientific papers for the year will be a remarkable article by Professor John Trowbridge, upon the most recent developments and uses of Photography.

ILLUSTRATED.

A class of articles which has proved of special interest will be continued by a group of papers upon Electricity in its most recent applications, by eminent authorities; a remarkable paper on Deep Mining, and other interesting papers.

UNIQUE ILLUSTRATIONS.

A Special Offer to cover last year's numbers, which include all the RAILWAY ARTICLES, as follows:

A year's subscription (1889) and the numbers for 1888, \$4.50

A year's subscription (1889) and the numbers for 1888, bound in cloth, \$6.00

\$3.00 a year; 25 cents a number.

CHARLES SCRIBNER'S SONS,

745-746 Broadway, N. Y.

A GREAT MAGAZINE.

The Century for 1889.



THE question has often been asked, "to what does *The Century* owe its great circulation?" *The Christian Union* once answered this by the statement that "it has been fairly won, not by advertising schemes, but by the excellence which characterizes it in every department." In their announcements for the coming year the publishers state that it has always been their desire to make *The Century* the one indispensable periodical of its class, so that whatever other publication might be desirable in the family, *The Century* could not be neglected by those who wish to keep abreast of the times in all matters pertaining to culture. And the unprecedented circulation of the magazine would seem to be the response of the public to this intention.

With the November number *The Century* begins its thirty-seventh volume. Two great features of the magazine which are to continue throughout the new volume are already well known to the public, the Lincoln history and the papers on "Siberia and the Exile System." The first of these, written by Messrs. Nicolay and Hay, President Lincoln's private secretaries, contains the inside history of the dark days of the war, as seen from the White House.



THE SIBERIAN PAPERS, by George Kennan, are attracting the attention of the civilized world. The *Chicago Tribune* says that "no other magazine articles printed in the English language just now touch upon a subject which so vitally interests all thoughtful people in Europe and America and Asia." As is already known, copies of *The Century* entering Russia have these articles torn out by the customs officials on the frontier.

DURING 1889

The Century will publish the most important art feature that has yet found place in its pages. It is the result of four years' work of Mr. Timothy Cole, the leading magazine engraver of the world, in the galleries of Europe, engraving from the originals the greatest pictures by the old masters.

A series of papers on Ireland, its customs, landscapes, etc., will appear, and there are to be illustrated articles on Bible scenes, treating especially the subjects of the International Sunday-School Lessons. George W. Cable will write "Strange, True Stories of Louisiana." There will be novelettes and short stories by leading writers, occasional articles on war subjects (supplemental to the famous "War Papers" by General Grant and others, which have been appearing in *The Century*), etc., etc.

The Century costs four dollars a year, and it is published by The Century Co., of New York, who will send a copy of the full prospectus to any one on request.

ESSMUELLER & BARRY, St. Louis, Mo., Millbuilders and Millfurnishers have purchased the entire plant of the St. Louis Roller Repair Co. They will retain that Co.'s skilled workmen, and it is needless to say that they now have one of the very best flour mill building establishments in the West.

FOR CHILDREN OF ALL AGES.

St. Nicholas for 1889



PEOPLE who have the idea that *St. Nicholas Magazine* is only for little children should look over the prospectus of that magazine for 1889, and they will discover that it is for children of all ages, "from five to eighty-five," as some one recently said of it. Indeed, while *St. Nicholas* is designed for girls and boys, it might almost be called a "family magazine," for the grown-up members of a household will find much to interest them in every number.

The editor, Mrs. Mary Mapes Dodge, calls the next volume an "all-round-the-world year," because it is to contain so many illustrated papers about the world in general—not dry geographical papers, but stories and sketches and tales of travel and adventure by land and sea—and all illustrated by the best artists. The features will include a serial story, "How We Met the Farthest North," by Gen. A. W. Greely, the well-known commander of the Greely Expedition; a serial about Canada, by Mrs. Catherwood, who is writing a serial story for *The Century* this year; "Indians of the Amazon," by Mrs. Frank R. Stockton. There are many papers about Europe, including a Christmas story of life in Norway, by H. H. Boyesen; articles on Holland and the Dutch, by Mrs. Mary Mapes Dodge; "The Queen's Navy," by Lieut. F. Harrison Smith, R. N., with illustrations of many of England's finest war ships; "The Winchester School," illustrated by Joseph Pennell; "English Railway Trains," by Wm. H. Rideing, etc., etc. The French papers include "Ferdinand de Lesseps and his two Ship Canals," and there are several interesting contributions on German, Italian and Russian subjects.



Under "Asia," comes "Boys and Girls in China," by Yan Phou Lee (a recent graduate of Yale); "Home Life in the East," by Mrs. Holman Hunt, and a number of papers about Japan. Under "Africa" there is a sketch of Henry M. Stanley, by Noah Brooks, and several stories about Egypt. Australia is not forgotten, nor the islands of the sea, and there are even to be stories of under the sea.

Of course the bulk of the contents will relate to American subjects, as usual. Mrs. Burnett, the author of "Little Lord Fauntleroy," contributes a story of New York called "Little Saint Elizabeth," there will be papers



describing how the government offices are conducted, papers about athletics, amateur photography, etc. The full prospectus will be sent to any one who wishes to see it by the publishers, The Century Co., of New York.

The *Graphic* recently said of *St. Nicholas*, "be family without it is only half-blessed."

A STUFFED stomach irritates the nervous system and provokes cholera while a comfortably filled one, quiets the nerves, provokes good nature and nourishes the body. The celebrated Dr. Abernethy is quoted as saying "Always arise from the table feeling as if you could eat a good bit more, and under ordinary circumstances your life will be long and the working of your mind clear and your thoughts pleasant."

the water, the ponds below being small ones, were quickly filled, and much water was wasted over the dams. The previous owners of H's mill used both steam and water in the dry season, and so permitted the stream to run undisturbed. M, one of the mill owners below, being unable to get any redress from H, brought a suit to enjoin him from preventing the usual flow of the stream, and the Supreme Court of Errors of Connecticut in deciding the case (*Mason vs. Hoyle*), on appeal in favor of M, though Judge Loomis said: "The rule that now obtains its jurisdiction, as recognized by all the authorities, is that the use made by mill owners of a stream must, in relation to other mill owners on the same stream, be a reasonable use. Whether the use be reasonable must depend less upon any general rule than upon the particular circumstances of the case. But there are certain conditions essential to a reasonable use so long recognized by common consent, or so obviously just, that we may safely generalize with regard to them. The use must be as near as possible an equal use, or rather an equal opportunity to use. Every one improving a mill privilege has a right to consider the law as protecting him against any unfair use by any other owner who may establish a mill above him. The term 'unfair use' is the equivalent of 'unreasonable use.' The defendant insists that we cannot consider the fact that he has steam power in his mill in determining this controversy; but we differ from him, as we are of the opinion that with the proper use of this power he can get a reasonable advantageous use of the water power and let the stream run on." B sides the immemorial local custom, down to H's time, to let the water go on unimpeded to the mill's below, has an important bearing upon the question here. And there remains this further significant element in the case, that the benefit to defendant is much less than the damage to plaintiff in stopping the usual flow; for whilst a full reservoir will run the former's mill but five hours, the latter is interrupted in the use of his mill about as many days. The injunction must be granted, otherwise the whole beneficial use of the stream will be absorbed by the defendant."—*From Legal Decisions in N. Y. Com. Bulletin.*

[From Bradstreet's.]

LEGAL NOTES.

NEW YORK ELEVATOR LAW VALID.—The test case (*People vs. Annan et. al.*) brought to determine whether or not the McEvoy Elevator law is constitutional, has been passed upon by the General Term of the New York Supreme Court, which has decided in favor of the constitutionality of the law. The decision of the court is based upon that of the Supreme Court of the United States, in the case of *Munn vs. Illinois*.

EMPLOYER'S LIABILITY—"MACHINERY."—A section of the Alabama Code makes the employer liable for injuries to an employee as if he were a stranger, when the injury is caused by any defect in the machinery used in the business of the employer. The Supreme Court of Alabama lately decided, in the case of *The Georgia Pacific Railway Company vs. Brooks*, that a hammer used for driving spikes into cross-ties on a railroad was not "machinery" within the meaning of this section.

PATENT LAWS IN SWITZERLAND.—The Swiss government has recently adopted a patent law, following the examples of civilized nations generally in providing for the protection of inventors and inventions. The law is not yet in force, and some time is expected to elapse before certain constitutional requirements are fulfilled. The feature of the new law is that it protects only material objects and not processes. This feature, Consul Gifford says, is largely due to the efforts of chemical and color manufacturers whose interests would not have been conserved by more comprehensive laws.

UNQUESTIONED CREDULITY.

Now and then a funny thing crops out in the hum-drum monotony of this somewhat dreary world. It is related that a package of bonds was received at the treasury in Washington from Boston with the numbers cut out. All was a mystery, and the secret service people came in force and held their chins in their hands and looked wise, while the general wonder went around what sort of new trick wicked ingenuity had hit upon to beat the unhappy government. But the solution is that the owner of the bonds, happening to be in this city at the time, but desiring to present his bonds for redemption, wrote to his wife, directing her to send him their numbers, and to send the bonds themselves on to Washington. The faithful woman followed instructions without inquiring into the reason, thereby setting an example for all Boston wives. She is the relative of the other woman whose husband, having to be absent quite a long time, opened a bank account in her name, and procured for her a neat little check book, which he presented with careful explanation of the mode of working. Before his return he received word from her that she wanted money; and when he returned and asked about it she said that the hateful people at the bank sent word that they wouldn't let her have any more. The husband looked over the check-book, and cried out, "No wonder they wouldn't—you've overdrawn already." "So the bank people said," responded his spouse, "but I know better for the checks in the book aren't half gone yet."—*Washington Paper.*

THE HUNGARIAN FLOUR TRADE.—A Pesth subscriber writes as follows: "The prospect is for a much larger business with England than hitherto in Hungarian flour. Up to the present the Pesth mills have not profited much from the improved position of the trade, and there were considerable stocks of old flour carried over from the last crop, which were sold for France and England at low prices. There is, however, now a lively demand for Great Britain, although the prices offered are not very remunerative, and much too low compared with American, quality for quality; in fact much higher prices could even now be obtained if the Hungarian mills would work more together. America, which in ordinary years sends 8 to 9 millions bags to Great Britain, will probably have only 5 to 6 millions bags this year, while Hungary can spare a maximum quantity of 2 millions bags, a large proportion of which, however, will be taken by France, Holland, Switzerland, etc. From this it is apparent that Hungarian flour will shortly be improving in price, probably to the extent of 3/ to 4/ per sack, and then will be comparatively cheap."—*Millers' Gazette.*

A LOCOMOTIVE MASCOT.

An engineer on the Wabash railway, whose run is between Danville and Springfield, has a cat which he would not part with for love or money. It belonged to his wife who is now dead, and for a year past it has been his constant companion in the cab. Ordinarily it sits perched up in the cab window before its master, but occasionally it strolls out to the pilot, where it will ride for hours at a stretch, winking knowingly at the dogs that bark at the trains as it thunders by the cross-roads. Sometimes, when the train is approaching a station, the adventurous animal climbs to the top of a sandbox and calmly roosts there, undeterred by the shriek of the whistle or the clang of the bell. The engine has had good luck ever since the animal became an occupant of the cab, and the trainmen look upon it as a mascot.—*Pittsburg Gazette.*

To every Lover of Good Reading:

DEAR FRIEND—Mr. Will C. Turner, the well known Publisher and Managing Editor of *CITY AND COUNTRY*, that excellent 16 page monthly magazine published at Columbus, Ohio, has recently made an offer in connection with his publication which should certainly be accepted by you. *CITY AND COUNTRY* has been regularly published at the rate of \$1 per year, for the past seven years. Mr. Turner is anxious to increase his already large circulation within the next three months to 50,000 regular subscribers more.

To accomplish this purpose, believing that every subscriber will, at the expiration of their subscription renew, he has devised the following plan:

Every person desiring to become a subscriber to the *CITY AND COUNTRY*, which, by the way, contains each year four to five continued stories, thirty to forty illustrations in each issue and a large amount of interesting reading—especially so to the ladies—is requested to carefully and plainly to write out two complete copies of this letter and sign your name at the bottom after the word, "Per"—. These copies must then be mailed by you to two of your friends in some other town or locality who are thereby requested to do just as you have done, viz: Write two copies and send to two of their friends, and so the work will go on and on. After mailing the two copies, the original letter which you copy from, together with a slip of writing paper, cut at the size of a postal card, with your address plainly written on one side and the address of the two to whom you have sent the copies on the other side, and 25 cents in silver or postage stamps must be enclosed in a letter and mailed to Will C. Turner, Columbus, Ohio. On the receipt of these you will be placed on the subscription list for one year, the copy for the present month will be promptly mailed, and also, which is the greatest reason why you should accept this offer, five complete novels in pamphlet form will be sent you by mail, post-paid, which would regularly cost one dollar each if bound in cloth. Do not let the opportunity pass, as Mr. Turner only proposes to let this offer stand for a short time. True, it requires some time and work to copy all this twice, but you will be most handsomely rewarded for it.

[Signed,]

WILL C. TURNER.
CLEVELAND, O.

* Art and Home Decoration ! *

Send this advertisement and \$4.00 (subscription price for 1889) DIRECT TO THE PUBLISHER, before January 1st, and you will receive

THE ART AMATEUR

From October, 1888, to December, 1889.

33 Beautiful Colored Plates,

Portrait, Fruit Flower, Marine, and Landscape Studies (for copying or framing), and charming designs for China Painting. Also

150 Pages of Useful Designs

in black and white, working size, admirably adapted for Oil and Water-Color Painting, China Painting, Church and Home Embroidery, Wood Carving, Brass Hammering, and other Art Work.

350 Pages of Practical Text,

richly illustrated, and crowded with valuable articles on Art and Home Decoration. Secure NOW

3 MONTHS FREE!

Including five colored plates, namely, a "STORMY COAST SCENE" in October; a "WATER LILY" and a "MOON-LIGHT MARINE" in November; a "WINTER LANDSCAPE" and a charming female figure, "HEARTS ARE TRUMPS," in December.

NOW (before January 1st) is the time to send, together with this advertisement, \$4 for 1889, and secure all that is offered above, including FOUR EXTRA COLORED STUDIES, "Quiet Coast Scene," "Little Rosebud (Child)," "Ferns," "Birds of Paradise," making

33 COLORED PLATES

FOR THOSE WHO SUBSCRIBE IN DECEMBER

The Twenty-four Colored Studies for 1889 will include Autumn Landscape, Winter Landscape, Sunset Landscape, Sunset Marine, Jacqueminot Roses, Carnations, Daffodils, Tulips, Apples, Girl's Head, and others not yet chosen. You are invited to state your preferences without delay. Address,

MONTAGUE MARKS, 23 Union Square, N.Y.

1888.

CAWKER'S

1888.

AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY

* FOR 1888 (COPYRIGHTED) *

Is now READY FOR DELIVERY. This Directory is far more complete than any of the five preceding ones. Our long experience has taught us the wants of the trade, and we have used our best endeavors to meet them. The principal features are as follows:

- 1.—List of Flour Mill owners of the United States and Dominion of Canada, with Post Office address, County and State, and when information is obtained, the capacity in barrels of flour per day of 24 hours, kind of power used (steam or water), roller or stone system.
- 2.—Lists of Corn, Oatmeal, Rice, Feed Mills, etc.
- 3.—List of Grain Elevators and Warehouses.
- 4.—List of Millwrights.
- 5.—List of prominent American Flour and Grain Brokers.
- 6.—List of Foreign Flour and Grain Importers.
- 7.—List of Mill Furnishers, etc.
- 8.—Statistics valuable to the Trade.
- 9.—Millers whom we believe to be worth Ten Thousand Dollars or more are indicated.

This directory gives the address of 16,062 Flour Mills in the United States and 1,634 in the Dominion of Canada. The additional lists of Feed, Corn, Barley, Oatmeal and Rice Mills, Elevators and Warehouses, Millwrights, Flour and Grain Brokers, Importers, etc., adds to the number of addresses several thousand. The COUNTIES are included in the address, and in cities, the street and number in most instances. We have had valuable aid in compiling this work from Secretaries of Boards of Trade, of Bureaus of Labor Statistics and Manufactures, from Railroad and Steamship Companies, from the milling and commercial press generally, and from mill and grain elevator owners themselves. That the work is *perfect*, we do not claim, for in the nature of things that is an impossibility, but as it is, it is indispensable to all desiring to reach the flour and grain trade of this country, and is *well worth the price asked*. The total number of addresses contained in this volume is 22,827.

Price of Directory, \$10 per copy, post paid, to any address.

If desired Directory will be sent by express C. O. D. Remit by Express or by Exchange on New York, Chicago or Milwaukee, or Post Office or Express Money Order. Address,

E. HARRISON CAWKER, PUBLISHER,

No. 124 Grand Avenue,

MILWAUKEE, WIS.

1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Millers' National Association, who use more copies of this Code, than of all others combined.

PRIVATE TELEGRAPHIC CIPHER

CODE

COMPILED EXPRESSLY FOR THE USE OF

Millers, Flour and Grain Brokers,

For Private Telegraphic Correspondence, either
for Land or Cable Lines.

This CODE has been approved and is used by the best firms in America and Europe. It contains Flour Tables, Bran Tables, Middlings Tables, Flour Grades and Brands, Time of Shipment, Dates, Names of Places, American Currency, Sterling Quotations, Table on Limits, etc., Drawing, Credits, etc., and Shipments on Joint Account, Miscellaneous, Market Upwards, Market Downwards, Insurance, Shipping and Freight, Shipping by Regular Lines of Steamers, Finance, Bankers' Names, Standing of Firms, Telegraphing, Advances, Commission, Stocks and Crops, Weather, Samples and Quality, Equivalent of Sacks in Barrel Quantities, Commission Tables, Interest Tables, Equivalent Flour Prices in Currency, Sterling, Francs, Guilders, and Marks, Comparative Tables, Sack and Barrel Flour, Ocean Freight Rates (Comparative Table), Sailings from Seaboard (Table), Key to Sailings from Seaboard Table, Foreign Weights and Measures, etc.

We respectfully refer to the following well-known firms: S. H. Seamans (Empire Mills), Sec'y of the Millers' National Association; E. Sanderson & Co. (Phoenix Mills), Milwaukee, Wis.; Daisy Roller Mills, Milwaukee, Wis.; Nunnemacher & Co. (Star Mills), Milwaukee, Wis.; Roots & Co. (Millers), Cincinnati, O.; C. H. Seybt, (Miller), Highland, Ill.; Kosmack & Co. (Flour Brokers), Glasgow, Scotland; J. F. Imbs & Co. (Millers), St. Louis, Mo.; E. Schraudenbach, Okauchee Roller Mills, Wis.; Winona Mill Co., Winona, Minn.; Herriek, Kirk & Co., New York; Acme Milling Co., Indianapolis, Ind.; W. H. Jones, New Brighton, Eng.; Chas. Kreutziger, Heidelberg; Wm.

Paddock & Co., Terre Haute, Ind.; Mandon Roller Mill Co.; L. R. Finch's Sons, New York; Jupiter Mills, Milwaukee; Morse & Sammis, Minneapolis, Minn.; Falst, Kraus & Co., Milwaukee; American Starch Co., Columbus, Ind.; Rudolph & Herne, Liverpool, Eng.; Cleveland Milling Co., Cleveland, O.; Zinkeisen B. & Co.; Albion Milling Co., Indianapolis; Norton Milling Co., Chicago; Norris & Carruthers, Montreal; Nelson Milling Co., Evansville; Valier & Spies Milling Co., Marine, Ill.; J. S. Hillyer; Gilchrist & Bros., Glasgow, Scotland; David Wright, Chicago; Crain & Baird, Montreal; H. D. Porteous & Co., Liverpool, Eng.; Aultman & Taylor Co.; John H. Peacock, Minneapolis, Minn.; Eckhardt & Swan, Chicago; E. H. Seybt, Highland. Albion Milling Co., Mich.; F. W. Stock, Hillsdale, Mich.; A. W. Howard, Minneapolis, Minn.; C. Hoffman & Son, Enterprise, Kas.; Reif- Huber Co., Chicago; Spink Bros., Toronto, Can.; Mr. Le Duc, City; Chas. Tiedeman, O'Fallon, Ill.; Hurins, Sons & Co., Cincinnati, O.; G. Montague & Co., Chicago; Phoenix Mill Co., Davenport, Ia.; Blanton, Watson & Co., Indianapolis, Ind.; Porter Milling Co., Winona; T. & A. B. Snider, German Mills, Ont.; Jenks & Mering; Richardson & Evans; Sidle, Fletcher & Co.; Comstock & Co.; I. T. Bronson; Mannegold & Son; Farquhar Bros.; Central Milling Co.; Watson & Farr; Globe Milling Co.; Geo. Teleson & Co.; L. Hurd; N. W. Miller; Wright & Hardie; Tolleson Com. Co., Atlanta; Yaeger Flour Mill Co.; Thos. Todd & Son; Ripon Roller Mills; Schoellkopf & Matthews; W. Trow & Co.; St. Paul Roller Mill Co.; and many others.

ADDRESS

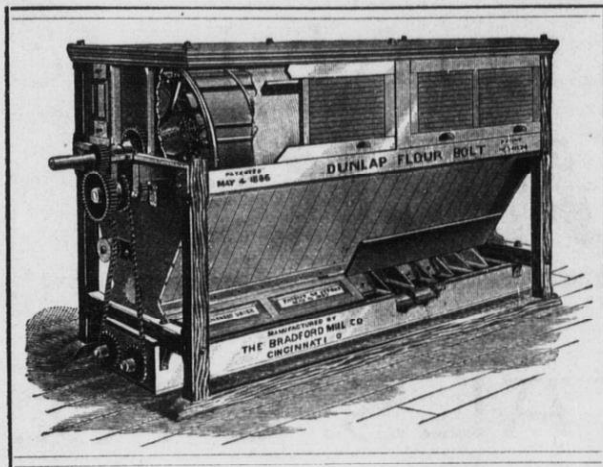
THE RIVERSIDE PRINTING CO.,

124 GRAND AVENUE,

MILWAUKEE, WIS., U. S. A.

THE DUNLAP * BOLT

"A Great Acquisition to Milling."



The New 1500-Barrel Mill on Staten Island, N. Y.,
will have 52 of these Reels to do all its Bolting.

HUNGARIAN ROLLER MILL CO.,

BLOOMINGTON, ILLS., September 14th, 1888.

THE BRADFORD MILL CO., Cincinnati, Ohio.

GENTLEMEN: I have had your DUNLAP REEL in operation about 15 days and nights, and on new wheat which was very soft, and it has accomplished its work admirably; greatly exceeded my expectations. I have operated quite a variety of Reels, but have to say the DUNLAP surpasses any I have ever seen or used.

It gives me pleasure to state that its work has given entire satisfaction, and moreover, am surprised at its close separation, capacity and light running. The Dunlap Reel can certainly be considered a great acquisition to milling.

I to-day forward you, per mail, samples of material upon which your Reel is working.

Yours truly,

A. G. BEOBOLD,

Head Miller Hungarian Roller Mill Co.

THE BRADFORD MILL CO.

CINCINNATI, OHIO.

ROLLED OR PRESSED Wire Cloth is now conceded to be the best for Scalpers and Reels. We manufacture it, and can fill all orders promptly from Furnishers or Millers. Cloths made up with Patent Metallic Fastening at lowest prices.

RELIANCE WIRE WORKS CO.,

— MANUFACTURERS OF —

Wire Cloths and Wire Goods of Every Description,
MILWAUKEE, WIS.

STILL ON TOP.



Perhaps the highest compliment that could be paid the "SALEM" Bucket, is the fact that, during the past few years, its shape has been so closely imitated by other manufacturers, as to infringe our patented rights; but experience reveals the imperfections of imitations, and, we therefore, take it as a further compliment to the "SALEM" Bucket, that some of its old patrons who were induced to try the imitations, have now returned to the Salem Bucket, thereby acknowledging it to be the most satisfactory. Don't be deceived by other makes of Buckets that are claimed to be "just as good." Insist upon having the **ORIGINAL AND RELIABLE**

"SALEM" BUCKET.

All legitimate "Salem" Buckets are plainly marked with the word "SALEM."

W. J. CLARK & CO., Sole Manufacturers, - SALEM, OHIO.

THORNBURGH & GLESSNER, Gen'l Agents, CHICAGO.

G. M. MANN.



F. P. MANN.

MILWAUKEE BAG COMPANY,

Successors to H. P. LEAVENS & CO.

MANUFACTURERS OF

Cotton, Paper and Jute FLOUR SACKS

DEALERS IN

TWINES, CENTALS, ETC.,

No. 134 West Water Street,

TELEPHONE NO. 427.

MILWAUKEE, - - WISCONSIN.

EVERY MILLER WHO HAS SEEN

THE NEW ERA SCALPER

Read what a Head Miller says about it:

MINNEAPOLIS, MINN., Oct. 21st, 1888.

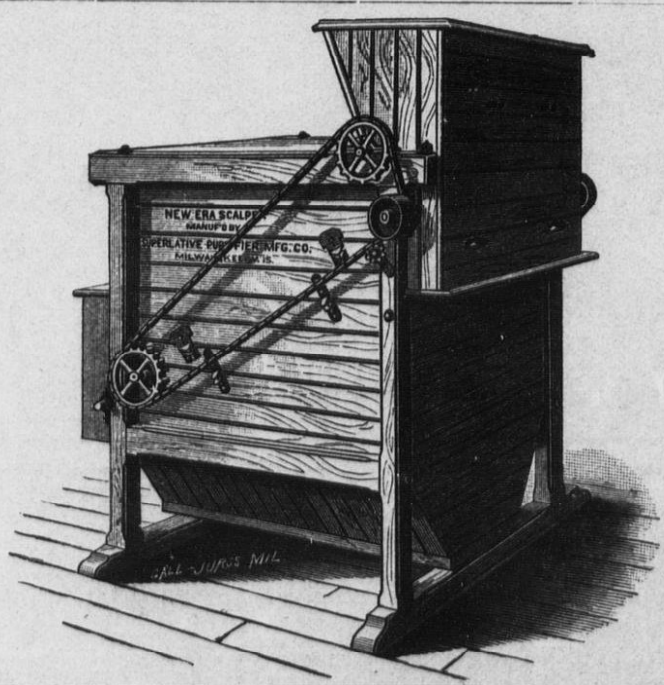
To the *Superlative Purifier Mfg. Co., Milwaukee, Wis.*

GENTLEMEN:—In answer to your inquiry regarding the New Era Scalper, I will say they are doing magnificent work; they are a great middlings saver, and are all that you claim for it.

Yours very truly,

THOS. C. CLARK,

Head Miller Pillsbury Mills, Minneapolis, Minn.



LANESBORO MILLING CO.,
Per A. M. HATCK

Yours truly,

To the *Superlative Purifier Mfg. Co., Milwaukee, Wis.*
GENTLEMEN:—Your New Era Scalper is a saving of 100 per cent. in the process of Scalping all stock from Break Reels. It requires less than 1 the space. It requires about 1-10 the Power. It is a saving of stock and makes more middlings than any other system of Reels. The working of machines can be seen at our Mills.

LANESBORO, MINN., June 21st, 1888.

Read what a Mill Owner says about it:

Says it is the finest Scalper ever put on the market. It does not *Scour* the *Bran* or *Middlings*, or *Pulverize* the *Stock*, consequently making but little *Break Flour*, with a corresponding increase in the *Higher Grades*, and what break flour is made is as white as any in the mill. One machine will do all the scalping for a 75 bbl. mill, or handle one break in a 500 bbl. mill.

Millers who wish to make good flour, address

SUPERLATIVE PURIFIER MFG. CO., - MILWAUKEE, WIS.

Also Manufacturers of the SUPERLATIVE PURIFIER and SUPERLATIVE BRAN DUSTER.

